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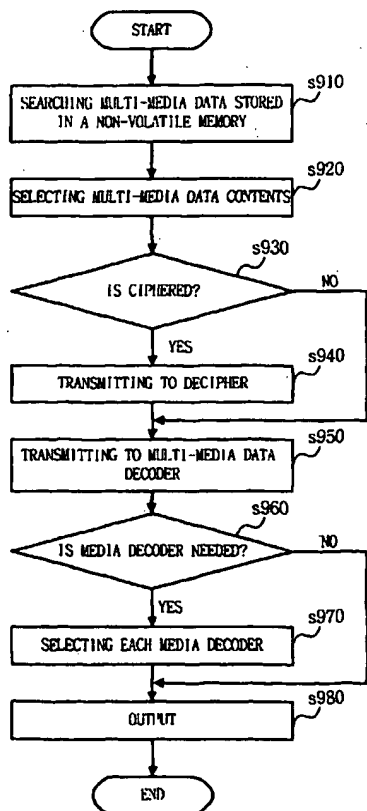
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(54) Title: **A METHOD FOR STORING, RETRIEVING MULTI-MEDIA DATA IN DIGITAL MOBILE TELEPHONES AND A DIGITAL MOBILE TELEPHONE THEREFOR**



(57) Abstract: Digital mobile phone storing and accessing ciphered multimedia data in a non-volatile, built-in memory detachable to and removable from the mobile phone. The mobile phone including an image decoder, voice decoder, odour emitting device, touch screen panel, earphone controlling plug, LED and buzzer. Also defined is a method of downloading multimedia data from a network or the Internet to the mobile phone, the multimedia data being formatted in a particular manner. Also defined is a method of advertising to mobile phone subscribers in which the advertiser is automatically informed of the mobile subscriber accessing the advert by use of the SMS. Lastly there is a method of executing multimedia data on a mobile phone in which the execution of the multimedia content is stopped to answer an incoming call and then after the completion of the incoming call the execution of the multimedia content is then either recommenced or terminated.

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**A METHOD FOR STORING, RETRIEVING MULTI-MEDIA DATA IN
DIGITAL MOBILE TELEPHONES AND A DIGITAL MOBILE
TELEPHONE THEREFOR**

5 BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to a method for storing, retrieving multi-media data in digital mobile telephone and a digital mobile telephone therefor. In particular, in the present invention, the multi-media data format used in the digital mobile
10 telephone denotes a voice compressed by a voice compressor as for voice and a data or a compressed data capable to be operated in the digital mobile telephone, for a text or an image data, and has a form of capable to interact with a speaker, an LCD, a buzzer, an LED, a vibrator and an odor emitter functioning as an data output means in the digital mobile telephone.

15 If the data contents request user inputting through a keypad or a microphone or a touch screen panel or an earphone control button, the user inputs through the input means by using the data formats having a form capable to interact with each other. And the multi-media data format has a format capable to be separated into each preferable form in a multi-media data decoder that can be
20 realized by software or hardware.

Description of the Related Arts

Fig. 1 illustrates a block diagram of a digital mobile telephone according

to the prior art. The service for a voice or a text data in the digital mobile telephone of the prior art is described as below.

A radio signal from a base station is changed to digital signal through a RF receiver, and a text data is stored in an electronic text mailbox or is displayed on an LCD by a channel decoder, and a voice data is outputted to speaker through a voice decoder. A voice signal inputted from a microphone in order to transmit voice outputs a voice data through a channel encoder and an RF transmitter after passing an A/D converter and a voice encoder. A text data inputted from the keypad is transmitted through the channel encoder and an RF transmitter.

As described above, the input and output of the conventional digital mobile telephone in the form of a voice, a text data and a data through a part of the input/output means of the mobile telephone are independent each other. Therefore, data processing using an integrated multi-media data format was not easy in a multi-media communication environment.

SUMMARY OF THE INVENTION

A feature of the present invention is to provide a method for easy processing by using an integrated multi-media data format in a multi-media communication environment and a digital mobile telephone therefor in order to solve the problems as described above.

Another feature of this invention is to provide a method for storing multi-media data of the digital mobile telephone.

Other feature of this invention is to provide a method for retrieving multi-

media data of the digital mobile telephone.

Other feature of this invention is to provide a method for servicing multi-media data of the digital mobile telephone.

Other feature of this invention is to provide a digital mobile telephone to
5 achieve the above features.

Other feature of this invention is to provide a method for confirming whether a user watched and heard an advertisement data through a traffic channel and a non-traffic channel of the digital mobile telephone.

Other feature of this invention is to provide a method for executing
10 contents of the digital mobile telephone.

BRIEF DESCRIPTION OF THE DRAWINGS

The object, other features and advantages of the present invention will become more apparent by describing the preferable embodiment thereof with
15 reference to the accompanying drawings, in which:

Fig. 1 (prior art) illustrates a block diagram of a digital mobile telephone of the prior art.

Fig. 2 illustrates a block diagram of a digital mobile telephone of the present invention.

20 Fig. 3 illustrates a flow chart of storing method for multi-media data through an external apparatus according to an embodiment of the present invention.

Fig. 4 illustrates a flow chart of storing method for multi-media data without an external apparatus according to an embodiment of the present invention.

Fig. 5 illustrates a flow chart of storing multi-media data through an external apparatus according to another embodiment of the present invention.

Fig. 6 illustrates a flow chart of retrieving method for multi-media data stored in a non-volatile memory according to an embodiment of the present invention.

Fig. 7 illustrates an embodiment of a format structure for the multi-media data according to the present invention.

Fig. 8 illustrates a flow chart of executing method for contents of the mobile telephone according to the present invention.

10

100, 2100: microphone	200, 2200: A/D converter
300, 2300: voice encoder	400, 2400: channel encoder
500, 2500: RF transmitter	600, 2600: duplexer
700, 2700: antenna	800: memory
15 900, 2900: microprocessor	1000, 2920: keypad
1100, 3900: LCD	1200, 3800: LCD operator
1300, 3100: channel decoder	1400, 3000: RF receiver
1500, 3500: speaker/earphone	1600, 3400: D/A converter
1700, 3300: voice decoder	2800: non-volatile memory
20 2910: earphone control button	2930: touch screen panel
2940: odor emitter	2950: external apparatus
2960: buzzer	2970: LED
2980: vibrator	3200: multi-media decoder

3600: decipher device

3700: image decoder

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 2 is a block diagram of a digital mobile telephone of the present invention. In the digital mobile telephone the prior art and this invention have the same basic component. But this invention further comprises a multi-media data decoder (3200), a decipher (3600), an odor emitter (2940) and a non-volatile built-in type memory (2800) which is detachable to and moveable from the digital mobile telephone.

Hereinafter, methods for storing multi-media data contents into the non-volatile memory in the digital mobile telephone in accordance with the present invention are described in detail.

A preferred embodiment of the storing method in accordance with the present invention, as illustrated in Fig. 3, stores the multi-media data into the digital mobile telephone through an external apparatus.

In this method, the external apparatus (2950) receives multi-media data contents provided by service providers through the Internet and personal computer network and downloads the multi-media data contents into a non-volatile memory (2800) of a digital mobile telephone through the communication with a microprocessor (2900) of the digital mobile telephone.

The external apparatus (2950) is an apparatus connected to the Internet or PC network by way of wired or wireless means, and the portable storing means is a portable storage media including a CD-ROM and a diskette.

And the external apparatus (2950) transmits multi-media data contents to and from the microprocessor (2900) by way of wired or wireless means.

This method, as illustrated in Fig. 3a, comprises the steps of executing (s100) an exclusive downloading program installed in the external apparatus (2950),
5 and setting-up (s200) a communication path between the external apparatus and a microprocessor in the digital mobile telephone, and receiving (s300) the multi-media data contents by using the set-up communication path, and storing (s400) the transmitted multi-media data contents to the non-volatile memory.

A more detailed flow chart is illustrated in the Fig. 3b. That is, the external
10 apparatus (2950) executes an exclusive downloading program installed in the external apparatus (2950) for downloading a multi-media data contents (s100), sets-up a communication path between the external apparatus and a microprocessor (2900) in the digital mobile telephone by executing the exclusive downloading program (s200), displays information related the multi-media data contents stored in
15 a recording media such as a hard disk, a CD-ROM and a diskette on a window after making the window for a user. And the exclusive downloading program directly connects the user to an Internet server if the user inputs a server address of the service provider.

After confirming whether the user directly connects to the Internet server
20 providing the multi-media data contents or not (s205), and if the user wants the direct connection, then the user inputs the server address (s210) and connects to the server and inputs his information (215).

The user searches multi-media data contents from the server (s220), and

selects preferable multi-media data contents and requests download by inputting information of the digital mobile telephone (e.g. telephone number) to be downloaded (s225).

The user checks whether he will immediately download the selected multi-media data contents to the digital mobile telephone or not (s230).

If the user wants to download immediately, at the beginning of the download, the program for download only confirms whether an information of the digital mobile telephone inputted by the user is identical to the information on the mobile telephone connected to the external apparatus, from which the multimedia data contents is downloaded (s240). After the confirmation, if the information is not identical to each other, the downloading is not executed and goes back to the step (225).

But, if the two information are identical to each other, the contents is downloaded to the mobile telephone (s320), and the user confirms whether the downloaded contents is stored into a portable storage means installed in the external apparatus or not (s420), and the downloaded contents is stored into the portable storage means (s440) if the user wants to store, and the procedure ends if the user does not want to store.

If the user does not want to download immediately, the selected multi-media data contents are stored to a portable storage means of the external apparatus (s440).

On the other hand, it is checked whether the information is already inputted in the portable storage means of the external apparatus such as a PC. That is,

based on the result of the confirmation step (s205), if the user does not want the direct connection because the information is already inputted into the portable storage means, then the preferable multi-media data contents from the portable storage means (s245) is searched, and the preferable multi-media data contents (s250) is selected, and the download of the selected preferable multi-media data contents to the portable mobile telephone (s252) is requested. And it is confirmed whether it is necessary to confirm an information of the mobile telephone according to the request (s254) or not, and the contents to the mobile telephone is downloaded if the confirmation is not necessary (s330), and it is confirmed whether an information of the digital mobile telephone inputted by the user is identical to the information of the mobile telephone connected to the external apparatus, from which the contents is downloaded (s260) if the confirmation is necessary. And, if the two information is identical to each other, the contents is downloaded to the portable mobile telephone (s330), or the procedure terminates if the two information is different each other.

Moreover, the program for downloading only executes the window for the user from external apparatus and receives the information about the multi-media data contents stored in the portable storage means and the information about the usable memory size of the mobile telephone and provides it through the window.

Unnecessary multi-media data contents in the portable mobile telephone can be deleted by editing functions such as storing and deleting. Therefore, it is easy to select preferable contents and download on the window having the above function by using a mouse pointer.

The second preferred embodiment for storing multi-media data contents into a non-volatile memory in a mobile telephone according to the present invention is to receive the multi-media data contents through an antenna (2700) from contents service provider providing the contents or mobile telecommunication service provider providing a mobile telephone service, and to store into the non-volatile memory via an RF receiver (3000) and a channel decoder (3100). In Fig. 4, this embodiment is illustrated.

As illustrated in Fig. 4, at first, user connects to the contents service provider's server via Internet by using of the digital portable mobile telephone (s500). After connecting, the user searches preferable multi-media data contents from the connected server (s510), and selects preferable multi-media data contents (s520), and requests to download the selected multi-media data contents to the digital mobile telephone (s530).

After receiving the requested contents by an antenna (2700) via a base station (s540), it is inputted into the channel decoder (3100) via the RF receiver (3000) (s560).

After this, user confirms whether the executing of an output signal of the channel decoder is made immediately or not (s570) and, if the user wants to execute later, stores the output signal of the channel decoder is stored to a non-volatile memory (2800) in the digital mobile telephone (s630) in order to freely retrieve when necessary.

Otherwise, if the user wants to execute immediately, after decoding the output signal of the channel decoder by a multi-media data decoder (3200), user

confirms whether a media decoder (3300) (3700) is needed or not (s590).

As a result of the confirmation, if the user needs the media decoder (3300) (3700), the user selects a media decoder to be needed for a voice data or an image data respectively, and decodes (s600), and outputs the decoded results to an output means (s610).

But, if the user does not need the media decoder (3300) (3700), he outputs the decoded data by the multi-media decoder (3200) through an output means (2940) (2960) (2980) (3900).

After deciding whether the output data from the output means (2940) (2960) (2980) (3900) is stored or not (s620), the user stores the output data to the non-volatile memory if the user wants to store (630), or ends the procedure if the user does not want to store.

If the inputted data is a text data, the inputted data is not outputted through the decoder (3300) but through a relevant output means (3900). The multi-media data contents outputted from the output means (3900) is stored into the non-volatile memory through a step for determining of storing (s 620) if the storing is necessary. At this time, the output means including a speaker/earphone (3500), an LCD (3900), a buzzer (2960), an LED (2970), a vibrator (2980), an odor-emitting device (2940) outputs the multi-media data contents.

The third preferred embodiment for storing multi-media data contents into a non-volatile memory in a mobile telephone according to the present invention is illustrated in Fig. 5. The method illustrated in the Fig. 5 stores the multi-media data contents into a non-volatile memory in a mobile telephone after receiving the multi-

media data contents from Internet or PC communication network.

At first in this method, via an external apparatus (2950), a user connects to a server providing the multi-media data contents on Internet or on the personal computer-based telecommunication network (s710), and selects preferable contents
5 from the server (s720). And the user inputs his information to the server in order to receive the selected contents through an antenna of the base station (s730). And then, he receives the multi-media data contents via the antenna of a mobile telephone in accordance with the inputted information (s740), and inputs the received data contents to a channel decoder via an RF receiver (s750).

10 After this, the user confirms whether executing of an output signal of the channel decoder immediately or not (s770). If the user wants to execute later, he stores (s830) the output signal of the channel decoder to the non-volatile memory (2800) in order to retrieve the stored multi-media data when necessary. Otherwise, if the user wants to execute immediately, he transmits (s780) the output signal of the
15 channel decoder (3100) to a multi-media data decoder (3200) in order to retrieve the output signal of the channel decoder and confirms whether a media decoder is needed or not (s790).

If the user needs the media decoder, he selects a voice decoder (3300) for voice data and selects an image decoder (3700) for an image data (s800) and
20 outputs the decoded data by the selected media decoder to a relevant output means (s810). But, if the data is a text data, and the media decoder is not needed, he outputs directly the decoded data by the channel decoder to a relevant output means without through the media decoder (s810).

After confirming user whether it is necessary to store the output multi-media data contents from the output means (s820), if the user wants to store, he stores (s830) the contents to the non-volatile memory (2800). In this case, the output means including a speaker/earphone (3500), a LCD (3900), a buzzer (2960),
5 an LED (2970), a vibrator (2980), an odor-emitting device (2940) outputs the multi-media data contents.

In the fourth preferred embodiment for storing multi-media data contents into a non-volatile memory of a mobile telephone according to the present invention, a non-volatile memory (2800) having multi-media data contents is installed in a
10 mobile telephone from the outside and the multi-media data contents is got, wherein the memory is removable from the mobile telephone.

In retrieving the stored multi-media data contents of the non-volatile memory (2800), if the stored contents are ciphered, preferable multi-media data contents are outputted to a relevant output means via a deciphering device (3600).
15 For example, according to the contents of the multi-media data, it is possible to output multi-media data contents to all the output means supported by the mobile telephone, or to the some of the output means as illustrated in Fig. 6.

In the method for retrieving the multi-media data contents stored in the non-volatile memory illustrated in the Fig. 6 the multi-media data contents stored in
20 the non-volatile memory (s910) is searched and the preferable multi-media data contents (s920) is selected. At this time, it is confirmed whether the multi-media data contents is ciphered or not (s930). After the confirmation, if the contents are ciphered, the selected preferable multi-media data is transmitted to a deciphering

device (3600) and if the contents are not ciphered, it is transmitted to a multi-media data decoder (3200). After inputting (s950) to the multi-media data decoder (3200), it is confirmed whether the media decoder is needed or not (s960). For voice and image data contents, a voice decoder (3300) and an image decoder (3700) are selected respectively (s970) and they are outputted through a relevant output means (s980). Otherwise, for text data contents, they are directly outputted to the preferable output means without using the media decoder (s980). In this case, the output means including a speaker/earphone (3500), an LCD (3900), a buzzer (2960), an LED (2970), a vibrator (2980), an odor-emitting device (2940) outputs the multi-media data contents.

On the other hand, if necessary, a contents service provider inserts advertisement to the contents and provides the user's mobile telephone.

It is possible to give predetermined points to the user when the user watches and hears the advertisement through the mobile telephone and to compensate the user for the accumulated points in the form of credit.

After this, formats of the multi-media data according to this invention is described. Fig. 7a is an embodiment of the multi-media data formats of this invention. The multi-media data format's structure comprises the following fields: a SOF (start of file) indicating a starting point of a file, a header, a control information, a voice information, a text information, an image information, other input/output information, an EOF (end of file) indicating an ending point of a file. The field size can be adjusted if necessary.

More detailed structure of each field is illustrated in Fig 7b to Fig. 7g.

The Fig. 7b shows the header part. The header comprises information on whole file size, version, file ID, position of each media and input/output data, type of each media, and other fields.

The whole file size field indicates a whole size of files including the SOF
5 and the EOF. The information on version indicating file's versions and on file's ID having information related the file ID is used for distinction of multi-media data files. The position field for each media and other input/output data has information on a starting position of a voice data, a text data, an image data and other input/output data. And the type field for each media has information on a vocoder's
10 type and an image data's type. And the other fields are option fields to be used in case not included in the header but they are necessary to the file.

The Fig. 7c shows a structure of the control information field. The structure comprises a SOC (start of control) field indicating a starting point of the control information, plurality of control data fields, an EOC (end of control) field
15 indicating an ending point of the control information. In this case, each control data field has a constant field size and has information on a voice data, a text data and an image data respectively and is repeated every constant time interval. That is, the control data has information on deciding whether there are the text data and the image data to be outputted to a LCD with the voice data.

20 The Fig. 7d shows a structure of the voice information field. The structure comprises a SOV (start of voice) field indicating a starting point of the voice information, a number of voice data fields, an EOVS (end of voice) field indicating an ending point of the control information.

The Fig. 7e shows a structure of the text information field. The structure comprises a SOT (start of text) field indicating a starting point of the text information, a number of header fields and text data fields next to the SOT, and an EOT (end of text) field indicating an ending point of the text information. Each
5 header field comprises information on size of the text data, and the text data field indicates a text data to be outputted to the LCD.

The Fig. 7f shows a structure of the image information field. The structure comprises a SOI (start of image) field indicating a starting point of the image information, a number of header fields of the next position of the SOI, and an EOI
10 (end of image) field indicating an ending point of the image information. Each header field comprises information on size of the image data, and the image data field has an image data to be outputted to the LCD.

The Fig. 7g shows a structure of the reserved input/output information field. The structure comprises a SOM (start of miscellany) field indicating a starting
15 point of the input/output information, a number of reserved input/output data fields and an EOM (end of miscellany). The reserved input/output data field takes forms as below in accordance with the type of the input/output

The Fig. 7h indicates a structure of the reserved input/output data field in case of input is requested. In this case, the reserved input/output data field
20 comprises an input field, a parameter field, time field and reserved fields. The input field has a constant value regardless of the types of the input means such as a keypad, microphone, a touch screen panel and an earphone control button. Therefore, it is possible to input preferable value through any input means. The

parameter field designates an input value range to be inputted by user. The time field designates the maximum time required for inputting value by user. The reserved field is an option field to be used if the information except the currently referred field is necessary to the file.

5 The Fig. 7i indicates a structure of the reserved input/output data field in case output through an LED is requested. In this case, the reserved input/output data field comprises an LED field, a field of the number of times, ON-time field, OFF-time field and reserved fields. The LED field indicates that the output means is the LED and the field of the number of times designates the numbers of flickering of
10 the LED. The ON-time field and the OFF-time field designate on time and off time of the LED respectively. The reserved field is an option field to be used if the information except currently referred field is necessary to the file.

 The Fig. 7j indicates a structure of the reserved input/output data field in case output through a vibrator is requested. In this case, the reserved input/output
15 data field comprises a vibrator field, a field of the number of times, ON-time field, OFF-time field and other fields. The vibrator field indicates that the output means is the vibrator and the field of the number of times designates the number of vibrating of the vibrator. The ON-time field and the OFF-time field designate on time and off time of the vibrator respectively. The reserved field is an option field to be used if
20 the information except the currently referred field is necessary to the file.

 The Fig. 7k indicates a structure of the reserved input/output data field in case output through an odor-emitting device is requested. In this case, the reserved input/output data field comprises an odor emitting device field, type of the odor-

emitting device, ON-time field, OFF-time field and reserved fields. The odor emitting device field indicates the output means is the odor-emitting device and the type field of the odor-emitting device designates types of the odor-emitting device. The ON-time field designates on time of the odor-emitting device. The reserved
5 field is an option field to be used if the information except the currently referred field is necessary to the file.

The Fig. 71 indicates a structure of the reserved input/output data field in case output through a buzzer is requested. In this case, the reserved input/output data field comprises a buzzer field, volume size field, rhythm field, a field of the
10 number of times, a number of frequency fields, a number of period fields corresponding to each frequency field, and reserved fields.

The buzzer field indicates that the output means is the buzzer and the volume and rhythm field designate volume and rhythm of the sound emitted from the buzzer respectively. The field of the number of times designates the iteration
15 number of the frequency and the period field. The frequency field designates tones of the sound, and the period field designates length of the sound. The reserved field is an option field to be used if the information except the currently referred field is necessary to the file.

Otherwise, it is well known to the skilled persons in this field that the
20 reserved input/output devices except the input/output devices as described in the above are included in the multi-media data format according to this invention.

And, in this invention, it is possible that the mobile telephone automatically informs to the advertisement service providers, if a user watched and

heard the advertisement, by using a SMS (short messaging service) using non-traffic channels or by using traffic channels.

And a method for executing multi-media data contents in a mobile telephone when a call is requested through the base station during the execution of
5 the multi-media data contents in a mobile telephone is illustrated in Fig. 8. The method comprises the steps of searching multi-media data contents (s1000), executing preferable multi-media data content out of the searched contents (s1020),

requesting a call by a base station during the execution of the contents (s1030), stopping the execution (s1040), answering to the call (s1050), confirming
10 whether the execution is going on or not if the call is over (s1060),

ending the procedure if user wants to stop the execution, and, if user wants to the execution, determining whether the re-starting point of the execution is a stopped point just before or a starting point of the contents (s1070), and executing the contents in accordance with the determination (s1080).

15 As described in the above, the present invention discloses plurality of methods for storing the multi-media data contents using a combined multi-media data format into the non-volatile memory of a mobile telephone. The present invention also discloses a method to retrieve and output the preferable contents through output means supported by the mobile telephone when necessary. The
20 present invention also discloses a method to interact among the users of the mobile telephone and the contents by using the input means supplied by the mobile telephone. A benefit of the present invention is that to store data effectively in a relatively small quantity of memory is possible if compressed data is used for each

media, which constitutes the multi-media data.

Although the preferred embodiments of the present invention have been described and illustrated in detail, it will be evident to those skilled in the art that various modifications and changes may be made thereto without departing from the
5 spirit and the scope of the invention as set forth in the appended claims and equivalents thereof.

WHAT IS CLAIMED IS:

1. A digital mobile telephone (MT) having a microphone, an A/D converter, a voice encoder, a channel encoder, an RF transmitter, a duplexer, an antenna, a microprocessor, a keypad, a vibrator, an RF receiver, a channel decoder, a LCD
5 operator, a LCD, a voice decoder, a D/A converter and a speaker/earphone, said digital mobile telephone comprising:

a non-volatile, built-in type memory detachable to and removable from the digital mobile telephone;

- a decipher for deciphering multi-media data read from memory if the multi-
10 media data is ciphered;

a multi-media data decoder for processing the data inputted from said channel decoder, decipher or memory;

an image decoder for decoding image data inputted into the multi-media data decoder;

- 15 a voice decoder for decoding voice data inputted into the multi-media data decoder;

an odor-emitting device for making and emitting odor controlled by the microprocessor;

- a touch screen panel for inputting data by touching a display installed on
20 the digital mobile telephone;

an earphone-controlling button for controlling volumes of external earphone connected to the digital mobile telephone;

a light emitting diode (LED) installed in the digital mobile telephone for

displaying status of the digital mobile telephone; and

a buzzer installed in the digital mobile telephone for emitting predetermined sounds.

2. The digital portable mobile telephone as set forth in claim 1, wherein the
5 multi-media data decoder is implemented in the form of software or hardware.

3. A method for reading by an external apparatus of multi-media contents provided by a service provider through one of the Internet, personal computer network and portable storing means and storing the read contents into a non-volatile, built-in type memory detachable to or removable from a digital mobile telephone,
10 said method comprising the steps of:

executing an exclusive downloading program installed in the external apparatus for downloading multi-media data contents;

setting-up a communication path between the external apparatus and a microprocessor in the digital mobile telephone by executing the exclusive
15 downloading program;

transmitting the multi-media data contents from the external apparatus to the microprocessor by using said set-up communication path; and

storing said transmitted multi-media data contents to the non-volatile memory by the microprocessor.

20 4. The method as set forth in claim 3, wherein the external apparatus is a personal computer and the portable storing means is a portable storage media including a hard disk, a CD-ROM and a diskette.

5. The method as set forth in claim 4, wherein the external apparatus is

connected to the Internet or a PC telecommunication network by way of wire or wireless means.

6. The method as set forth in claim 3, wherein the digital mobile telephone receives the multi-media data contents from the external apparatus by way of the
5 wire or wireless means.

7. The method as set forth in claim 3, wherein said communication path setting-up step comprises the steps of:

confirming of a user whether the external apparatus directly will be connected to an Internet server providing the multi-media data contents or not;

10 if the user wants direct connection, inputting a server address;

connecting to a server corresponding to the server address and inputting user's information;

if a certification for use is admitted from the server through the user's information, searching multi-media data contents from the server;

15 selecting preferable multi-media data contents and, inputting an information of the digital mobile telephone to download said selected multi-media data contents;

confirming of the user whether the user will immediately download the selected multi-media data contents to the digital mobile telephone or not;

20 if the user does not want to download immediately, storing said selected multi-media data contents to a portable storage means installed in the external apparatus;

if the user wants to download immediately, confirming by said exclusive

downloading program whether an information of the digital mobile telephone having requested the downloading is identical to an information of the mobile telephone connected to the external apparatus in order to download;

if the two information is different each other, selecting preferable multi-media data contents and inputting an information of the digital mobile telephone to download the selected multi-media data contents;

if the two information is identical to each other, downloading the contents to the mobile telephone;

confirming of the user whether the downloaded contents will be stored into a portable storage means installed in the external apparatus or not;

if the user wants to store, storing the downloaded contents into the portable storage means;

if the user does not want to store, terminating;

if the user does not want direct connection, searching preferable multi-media data contents from the portable storage means;

selecting preferable multi-media data contents according to said search;

requesting download of the selected preferable multi-media data contents to the mobile telephone;

confirming whether it is necessary to confirm an information of the mobile telephone or not, and downloading the contents to the mobile telephone if the confirmation is not necessary;

if the confirmation is necessary, confirming whether an information of the digital mobile telephone having requested the downloading is identical to an

information of the mobile telephone connected to the external apparatus in order to download;

if the two information is identical to each other, downloading the contents to the portable mobile telephone; and

5 if the two information is different each other, terminating.

8. The method as set forth in claim 4, wherein the exclusive downloading program provides the information relating to the multi-media data contents stored in the portable storage means and on the usable memory size of the mobile telephone through a window for user after executing the window by the external apparatus.

10 9. The method as set forth in claim 8, wherein said method has editing functions to store and delete information displayed on the window of the external apparatus in order to delete unnecessary multi-media data contents in the mobile telephone at the external apparatus.

10. A method for storing multi-media data without an external apparatus from
15 a contents service provider providing multi-media data via Internet or mobile communication service provider providing a mobile telephone service to a digital mobile telephone, said method comprising the steps of:

connecting of a user to the contents service provider's server via internet by using of the digital mobile telephone;

20 searching preferable multi-media data contents from the connected server;

selecting preferable multi-media data contents according to said search;

requesting to download said selected multi-media data contents to the digital mobile telephone;

receiving said requested contents through an antenna via a base station;
inputting said received contents to a channel decoder via a RF receiver;
confirming of the user whether an output signal of the channel decoder
will be executed immediately or not;

5 if the user wants to execute later, storing the output signal of the channel
decoder to a non-volatile built-in type memory in the digital mobile telephone, said
memory detachable or removable from the digital mobile telephone;

if the user wants to execute immediately, decoding the output signal of the
channel decoder by using a multi-media data decoder;

10 confirming of the user whether it is necessary to decode said decoded data
outputted from the multi-media data decoder by using a media decoder or not;

if the user wants to decode by using the media decoder, decoding said
decoded data outputted from the multi-media data decoder by using a media
decoder;

15 outputting said decoded data by the media decoder or data not necessary to
decode by the media decoder through an output means;

deciding whether said outputted data from the output means will be stored
or not;

storing said outputted data to the non-volatile memory if the user wants to
20 store, and terminating if the user does not want to store.

11. The method as set forth in claim 10, wherein the output means comprises a
speaker/earphone, an LCD, a buzzer, a vibrator, and an odor-emitting device.

12. A method for receiving multi-media data contents from Internet or a

personal computer telecommunication network and storing the received data to a non-volatile built-in type memory in the digital mobile telephone said memory being detachable to or removable from the digital mobile telephone, said method comprising steps of:

5 via an external apparatus, connecting to a server providing the multi-media data contents on the Internet or on the personal computer telecommunication network;

 searching and selecting preferable contents from the server;

 inputting a user's information to the server in order to receive the selected
10 contents through an antenna via the base station;

 receiving the multi-media data contents from the antenna to a mobile telephone in accordance with said inputted information;

 inputting said received data contents to a channel decoder via an RF receiver;

15 deciding of the user whether an output signal of the channel decoder will be executed immediately or not;

 if the user wants to execute later, storing the output signal of the channel decoder to the non-volatile memory;

 if the user wants to execute immediately, transmitting the output signal of
20 the channel decoder to a multi-media data decoder;

 confirming of the user whether a media decoder is necessary or not to the contents;

 if the user wants to decode by the media decoder, selecting a voice decoder

for voice data and selecting an image decoder for an image data;

outputting said decoded data by the selected media decoder to a relevant output means;

if the user does not want to decode by the media decoder, outputting
5 directly said decoded data by the channel decoder through an output means with the bypassing of the media decoder;

confirming of the user whether it is necessary to store the output multi-media data contents from the output means;

if the user wants to store, storing the contents to the non-volatile memory;

10 and

if the user does not want to store, terminating.

13. The method as set forth in claim 12, wherein the output means comprise a speaker/earphone, a LCD, a buzzer, a LED, a vibrator and an odor emitting device.

14. A method for retrieving multi-media data contents stored in a non-volatile
15 built-in type memory in the digital mobile telephone, said memory being detachable to or removable from the digital mobile telephone, said method comprising the steps of:

searching the multi-media data contents stored in the non-volatile memory;

selecting preferable multi-media data contents according to said search;

20 confirming whether said selected preferable multi-media data contents is ciphered or not;

transmitting said selected preferable multi-media data to a deciphering device if the contents are ciphered, or to a multi-media data decoder if the contents

are not ciphered;

confirming whether the output signal from the multi-media data decoder needs a media decoder or not;

transmitting to relevant media decoder if the media decoder is needed for the contents, and outputting directly to an output means if the media decoder is not needed; and

outputting the contents outputted from the media decoder to an output means.

15. The method as set forth in claim 14, wherein the output means comprise a speaker/earphone, an LCD, a buzzer, an LED, a vibrator and an odor emitting device.

16. The method as set forth in claim 15, wherein the method further comprising the step of:

if necessary, by said contents provider, inserting advertisement to the contents provided to the mobile telephones, providing the contents, and giving predetermined points to user when the user watches and hears the advertisement through the mobile telephone, and compensating the user for the accumulated points in the form of credit.

17. A method for formatting a multi-media data for using in a digital mobile telephone including text data, voice data, image data and odor data, said method comprising the fields of:

a SOF (start of file) field indicating a start of a file;

a header field including information fields of file size, file version, file ID,

position of each media and input/output data, type of each media and reservation;

a control information field including information fields of SOC (start of control), EOC (end of control) and a number of information fields for control data;

a voice information field including information field of SOV (start of voice), EOVS (end of voice) and a number of information fields for voice data;

a text information field including information field of SOT (start of text), EOT (end of text), a number of the header fields and a number of text data fields corresponding the relevant header fields;

an image information field including information field of SOI (start of image), EOI (end of image), a number of the header fields and a number of image data fields corresponding the relevant header fields;

an input/output information field including information field of SOM (start of miscellany), EOM (end of miscellany) and a number of reserved input/output information fields; and

an EOF (end of file) indicating end of file.

18. The method as set forth in claim 17, wherein the input/output information field includes:

if an input is requested, an input field, a parameter field, time field and other fields;

if an output to LED is requested, a LED field, a field of the number of times, ON-time field, OFF-time field and reserved fields;

if an output to a vibrator is requested, a vibrator field, a field of the number of times, ON-time field, OFF-time field and reserved fields;

if an output to an odor emitting means is requested, a field of the odor emitting means, a field of types of the odor emitting means, ON-time field, and reserved fields;

if an output to a buzzer is requested, a buzzer field, a volume size field, a beat time field, a field of the number of times, numbers of frequency fields, a number of period fields corresponding each frequency fields, and reserved fields.

19. The method as set forth in claim 18, wherein the multi-media data format includes a format, said format being capable to be separated into each preferable form in a multi-media data decoder that can be implemented by software or hardware.

20. The method as set forth in claim 18, wherein each control data field has a constant field size and gets information on a voice data, a text data and image data every constant time period, and the control data has information on deciding whether the text data and the image data to be outputted to a LCD with the voice data are being or not.

21. A method for advertising to mobile telephone subscribers through data including advertising contents, said method characterized in that the mobile telephone automatically informs to the advertisement service providers, if the user watches and hears the advertisement, by using the SMS (short messaging service) utilizing the non-traffic channels or by using the traffic channels.

22. A method for executing multi-media data contents in a mobile telephone, said method comprising the steps of:

searching the multi-media data contents;

executing preferable multi-media data contents out of said searched contents;

if a call request by a base station occurs during the execution, stopping the execution;

5 answering to the call according to the call;

confirming whether said execution is going on or not if the call is over;

terminating if the user wants to stop the execution, and, if the user wants the execution, determining whether the re-starting point of the execution is a stopped point just before or an original starting point of the contents; and

10 executing the contents in accordance with the determination.

23. The method as set forth in claim 22, wherein said method being characterized in that the mobile telephone has a non-volatile, built-in type memory, said memory being detachable to or removable from the mobile telephone.

AMENDED CLAIMS

[received by the International Bureau on 5 October 2001 (05.10.01);
original claims 1-23 replaced by new claims 1-18 (4 pages)]

1. A digital mobile telephone for processing electrical signals for mobile telephone communication and adapted to reproduce multimedia data, said digital mobile telephone comprising:

data communication means for transmitting to and receiving from an external communication device, said data communication means including an antenna, an RF transmitter, a channel encoder, an RF receiver, a channel decoder and a duplexer;

input means for receiving an user's instructions, said input means including a key pad and a microphone;

multimedia data storing means for storing said multimedia data contents;

a plurality of multimedia data reproducing and outputting means for retrieving said multimedia data and including a loudspeaker and a display screen; and

data processing means including an A/D converter, a voice encoder, a D/A converter, a voice decoder, a microprocessor and a multimedia data decoder,

wherein, said multimedia data is of a format having a header field which comprises a general information sub-field for indicating data total size and a version of each multimedia data file, a media information sub-field for identifying various multimedia data files, a manipulation information sub-field for describing how to process each of the multimedia data files, and a data information sub-field for indicating positions of each of the multimedia data files; and

said multimedia data decoder processes the multimedia data from the channel decoder and/or from the multimedia data storing means and distributes the processed multimedia data to corresponding one of the multimedia data reproducing and outputting means.

2. The digital mobile telephone of claim 1, wherein the multimedia data decoder is implemented in a form of selected from a group consisting of software, hardware and a combination of the software and hardware.

3. The digital mobile telephone of claim 1, wherein the multimedia data reproducing and outputting means further comprises a decipher for deciphering the multimedia data from the multimedia data storing means, when the multimedia data are encrypted.

4. The digital mobile telephone of claim 1, wherein the multimedia data reproducing and outputting means further comprises at least one of an odor-emitting device for making and emitting odor under control of the microprocessor, a light emitting device installed in the digital mobile telephone for displaying status of the digital mobile telephone, a buzzer provided within the digital mobile telephone for emitting audible sound signals, and a vibrator for producing a vibration signal.

5. The digital mobile telephone of claim 1, wherein said format of the multimedia data further comprises a control information field including sub-fields of SOC (start of control), EOC (end of control) and data control, said data control sub-field having an information on reproduction of one of the multimedia data together with other multimedia data.

6. The digital mobile telephone of claim 5, wherein said format of the multimedia data further comprises a payload field including at least one of a voice information sub-field having voice data, a text information sub-field having at least one header and text data corresponding to the associated header, an image information sub-field having at least one header and image data corresponding to the associated header.

7. The digital mobile telephone of claim 1, wherein the multimedia data storing means is selectively detachable to and from the digital mobile telephone.

8. A method for providing multimedia data contents for use in a digital mobile telephone, said method comprising steps of:

- preparing multimedia data contents of a format having a header field and a payload field having a plurality of multimedia data, said header field having a general information sub-field for indicating data total size and a version of each multimedia data file, a media information sub-field for identifying various multimedia data files, a manipulation information sub-field for describing how to process each of the multimedia data files, and a data information sub-field for indicating positions of each of the multimedia data files;

- receiving a request for the multimedia data contents from a plurality of digital mobile telephones;

- receiving and processing an user information from the requesting digital mobile telephone;

- supplying a selection function for the digital mobile telephones to choose at least

one of the multimedia data contents; and

transmitting to the requesting digital mobile telephone the multimedia data contents chosen and modified on the basis of an information regarding the requesting mobile telephone.

9. The method for providing multimedia data contents of claim 8, wherein the step of transmitting the multimedia data contents comprises steps of transmitting the multimedia data contents to an external device so that the transmitted multimedia data contents can be delivered to the digital mobile telephones by the external device.

10. The method for providing multimedia data contents of claim 9, wherein said external device includes a personal computer.

11. The method for providing multimedia data contents of claim 8, wherein the step of transmitting the multimedia data contents sends the multimedia data contents directly to the requesting digital mobile telephone.

12. The method for providing multimedia data contents of claim 11, wherein the step of receiving and processing an user information is performed by receiving the user information and a mobile telephone information from an external apparatus, and the step of transmitting the multimedia data contents includes confirming whether the mobile telephone information received from the external apparatus is correct.

13. The method for providing multimedia data contents of claim 8, wherein the information regarding the requesting mobile telephone includes data indicating usable memory size of the digital mobile telephone.

14. The method for providing multimedia data contents of claim 8, wherein the multimedia data contents contains an advertisement data.

15. The method for providing multimedia data contents of claim 14 further comprising steps of giving predetermined points to the digital mobile telephones when the advertisement data is sent to and retrieved by the digital mobile telephone.

16. The method for providing multimedia data contents of claim 8, wherein the payload field comprises at least one of a voice information sub-field having voice data, a text information sub-field having at least one header and text data corresponding to the associated header, an image information sub-field having at least one header and image data corresponding to the associated header.
17. A method for executing multimedia data contents in a mobile telephone, said method comprising the steps of:
- searching and selecting the multimedia data contents;
 - executing selected multimedia data contents;
 - pausing the execution when a call request by a base station occurs during the execution;
 - answering to the call;
 - deciding whether said execution is going on or not if the call is over;
 - terminating if the user wants to stop the execution, and, if the user wants the execution, determining whether the re-starting point of the execution is a paused point just before or an original starting point of the contents; and
 - executing the contents in accordance with the determination.
18. The method as set forth in claim 17, wherein the mobile telephone has a non-volatile, built-in memory, said memory being detachable to the mobile telephone.

STATEMENT UNDER ARTICLE 19(1)

International Application No.: PCT/KR 01/00730

An amendment to the claims as originally filed was made under Article 19(1) by amending claims 1, 2, 22 and 23, deleting claims 3 to 21, and newly adding claims 24 to 37. The device in amended claims 1 and 2 are defined and limited by data format of multimedia data contents that can be processed and reproduced by the claimed digital mobile phone. In claims 22 and 23, no substantial change was introduced by the amendment. Newly added claims 24 to 28 are dependent claims referring directly or indirectly amended claim 1. A method for providing multimedia data contents for the digital mobile telephone is claimed in newly added claims 29 to 37.

Limitations in amended and added claims 1, 2 and 24 to 28 include the data format illustrated in Fig. 7 and explained in the related portions of the specification and structures shown in Fig. 2 and explained in the related portions of the specification. Method claims 29 to 37 claim a method for providing multimedia contents for use in a digital mobile telephone which is capable of processing and reproducing multimedia data of a format defined in claim 1. The method is within the disclosure in the international application, since it does not go beyond what is explained in the specification with reference to Figs. 3 to 6.

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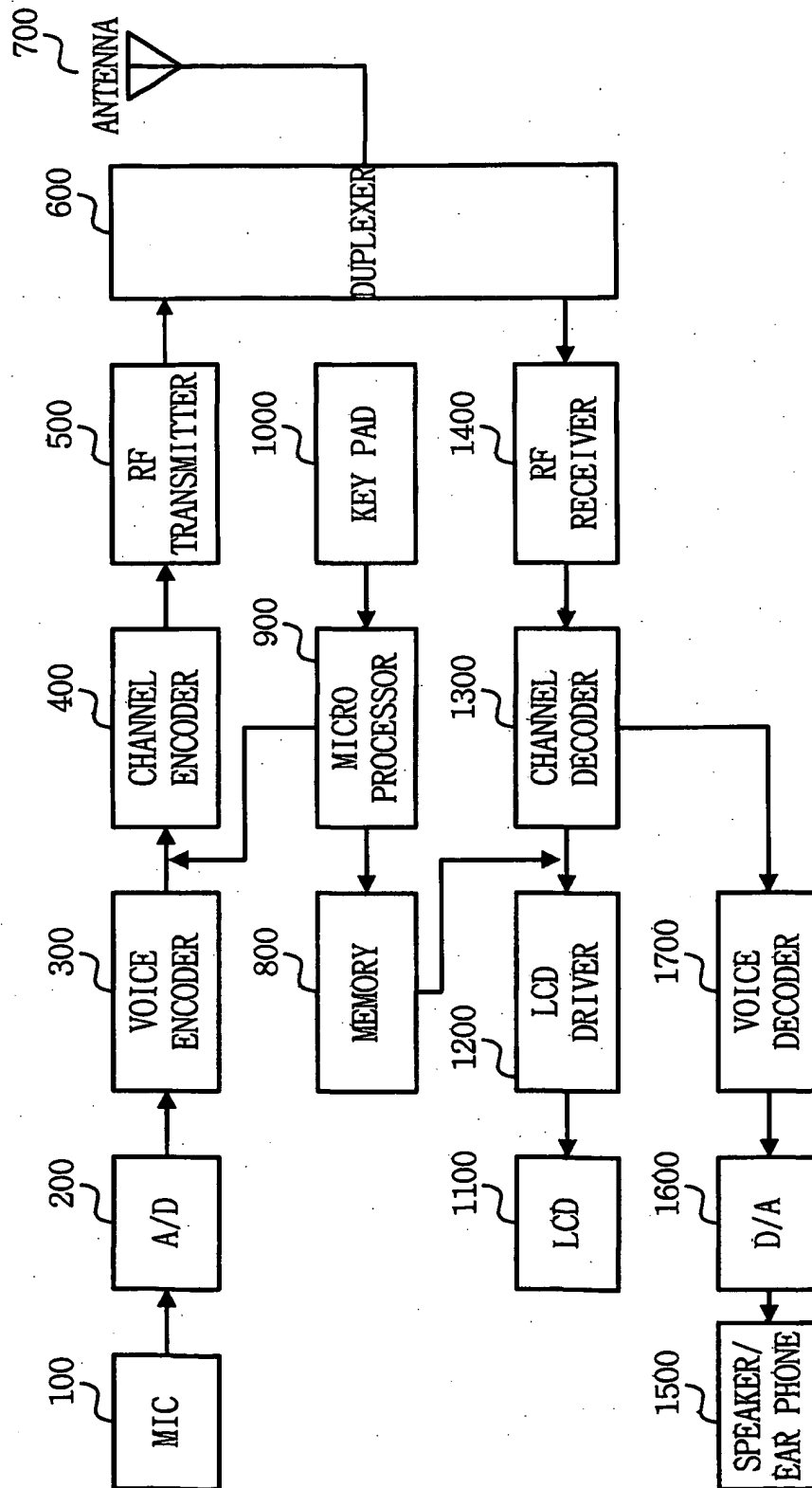


FIG. 1

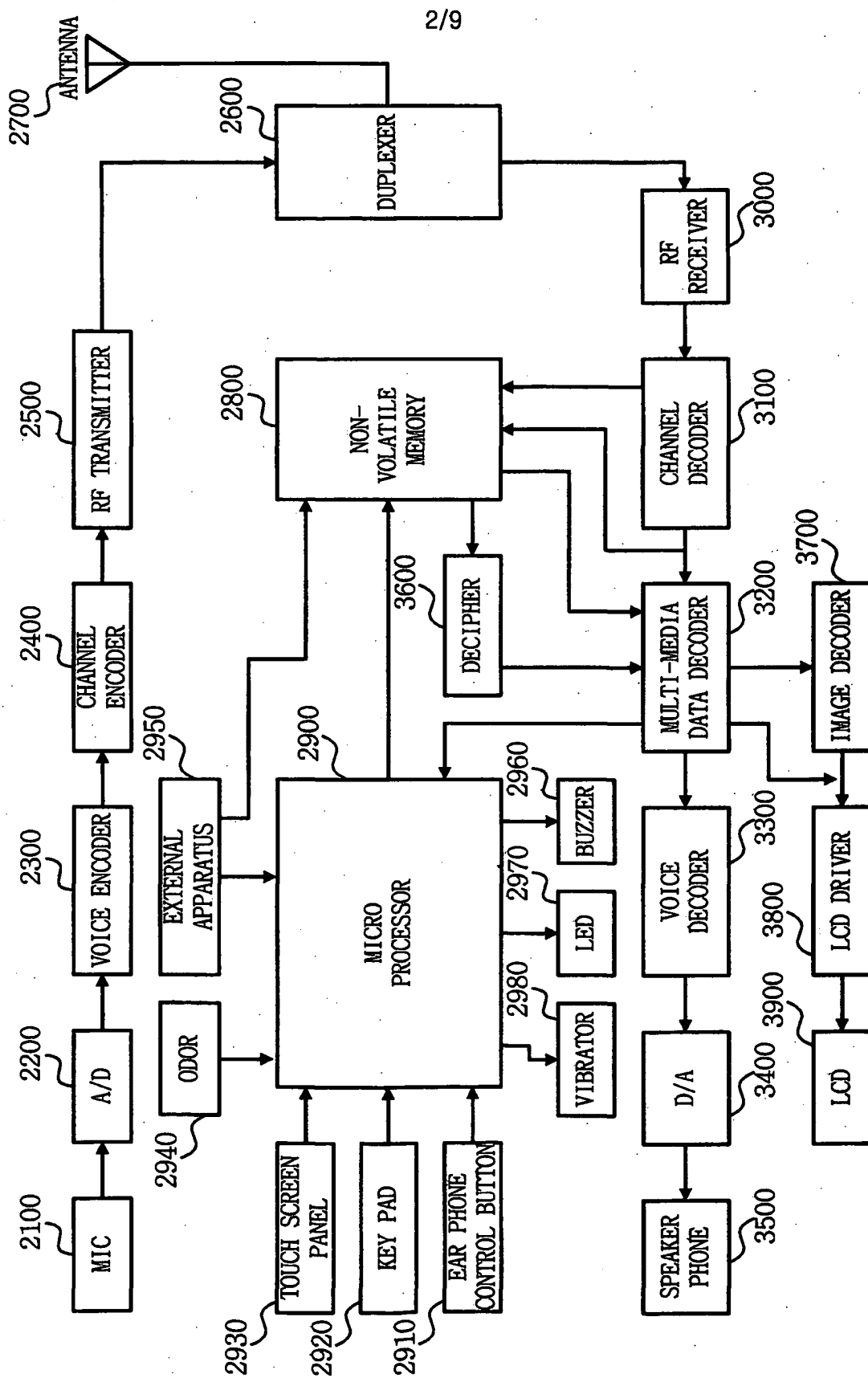


FIG. 2

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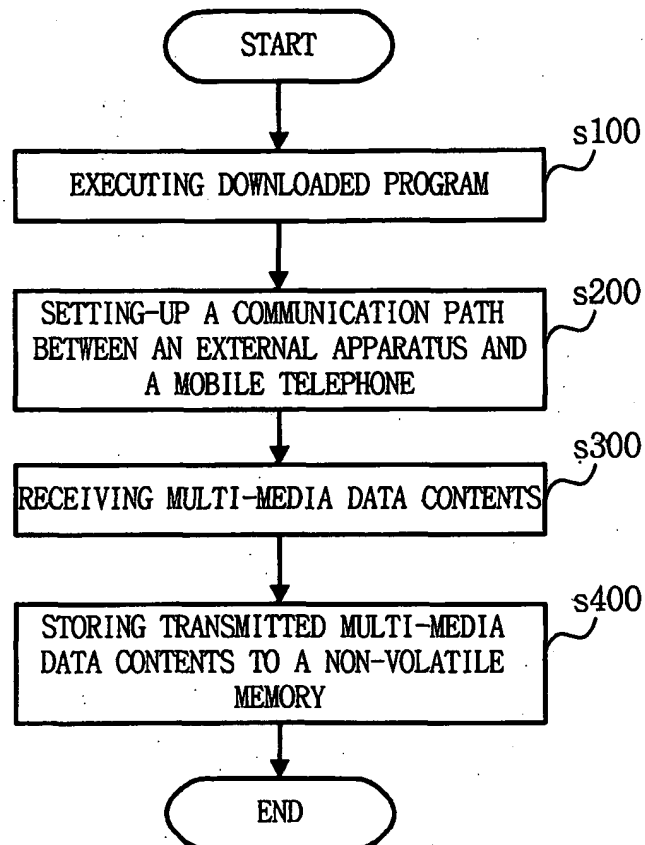


FIG. 3A

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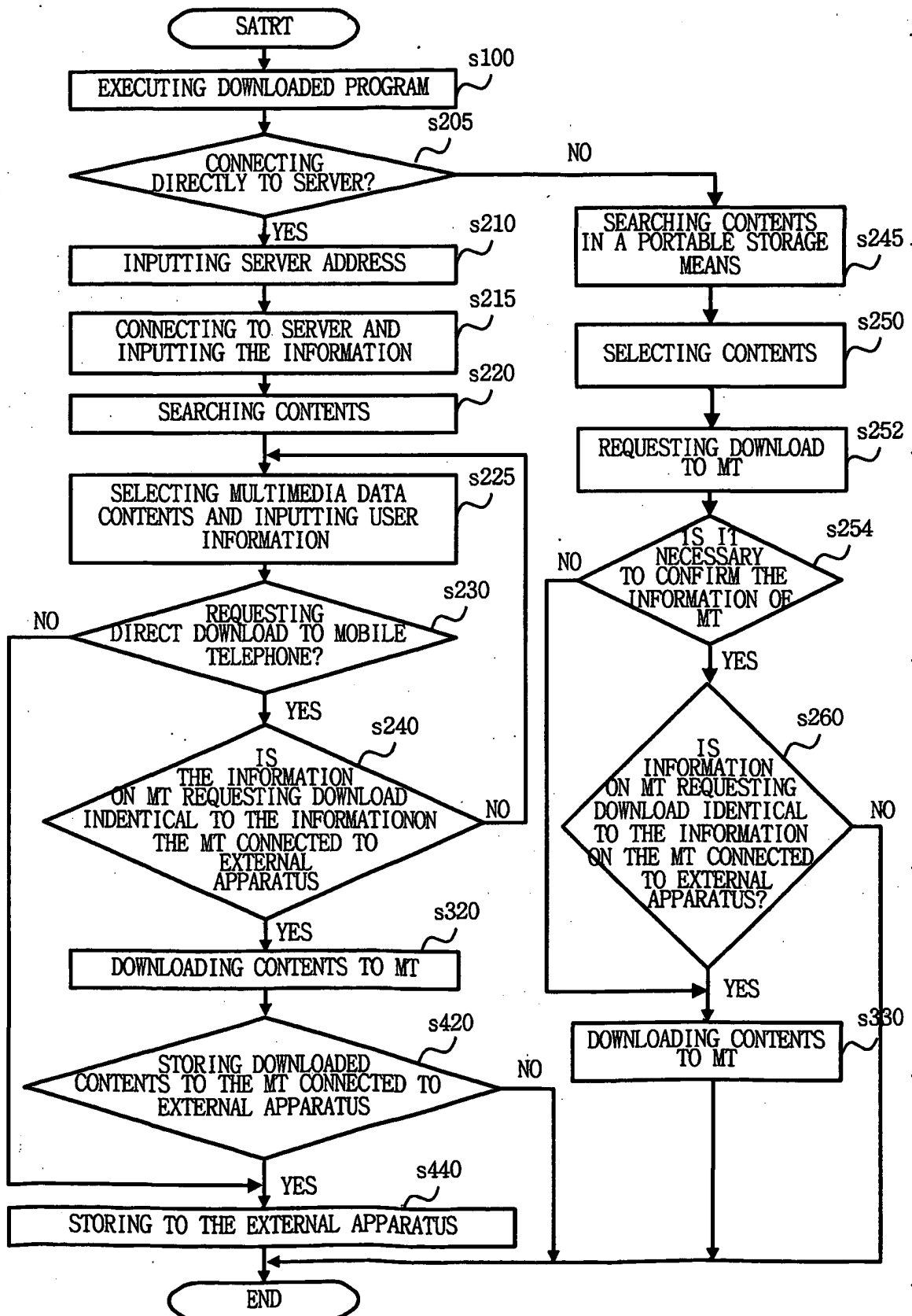


FIG. 3B

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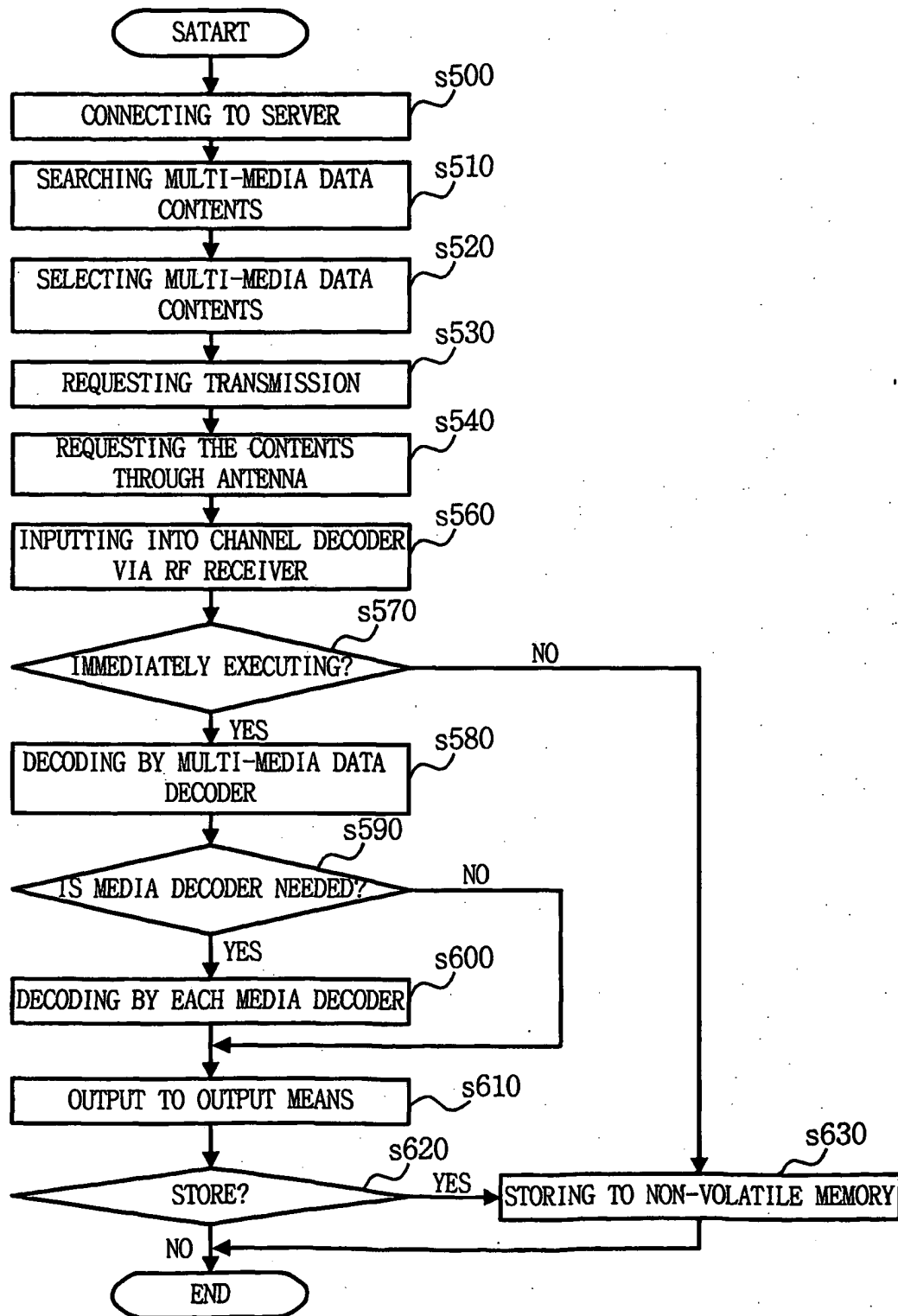


FIG. 4

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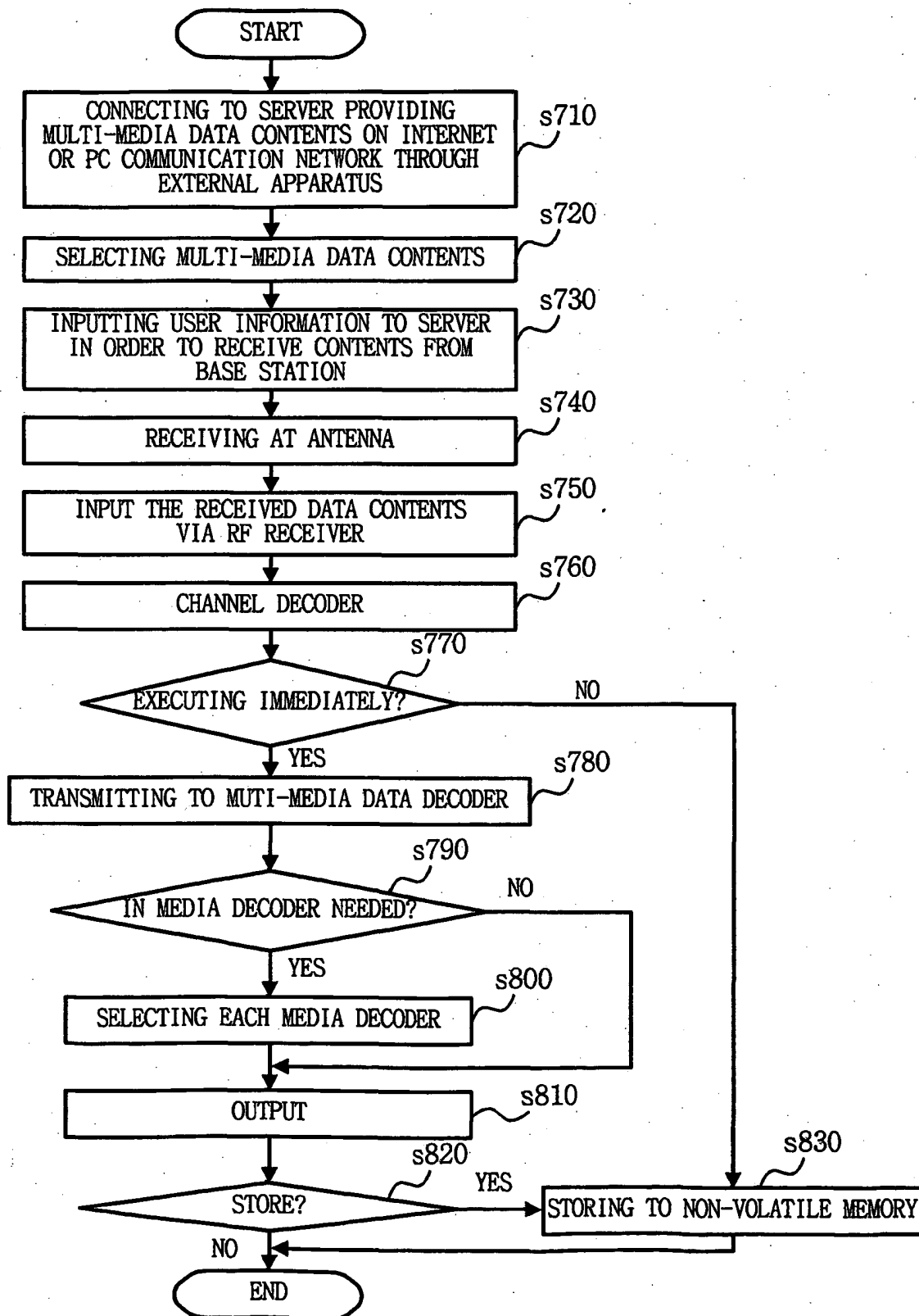


FIG.5

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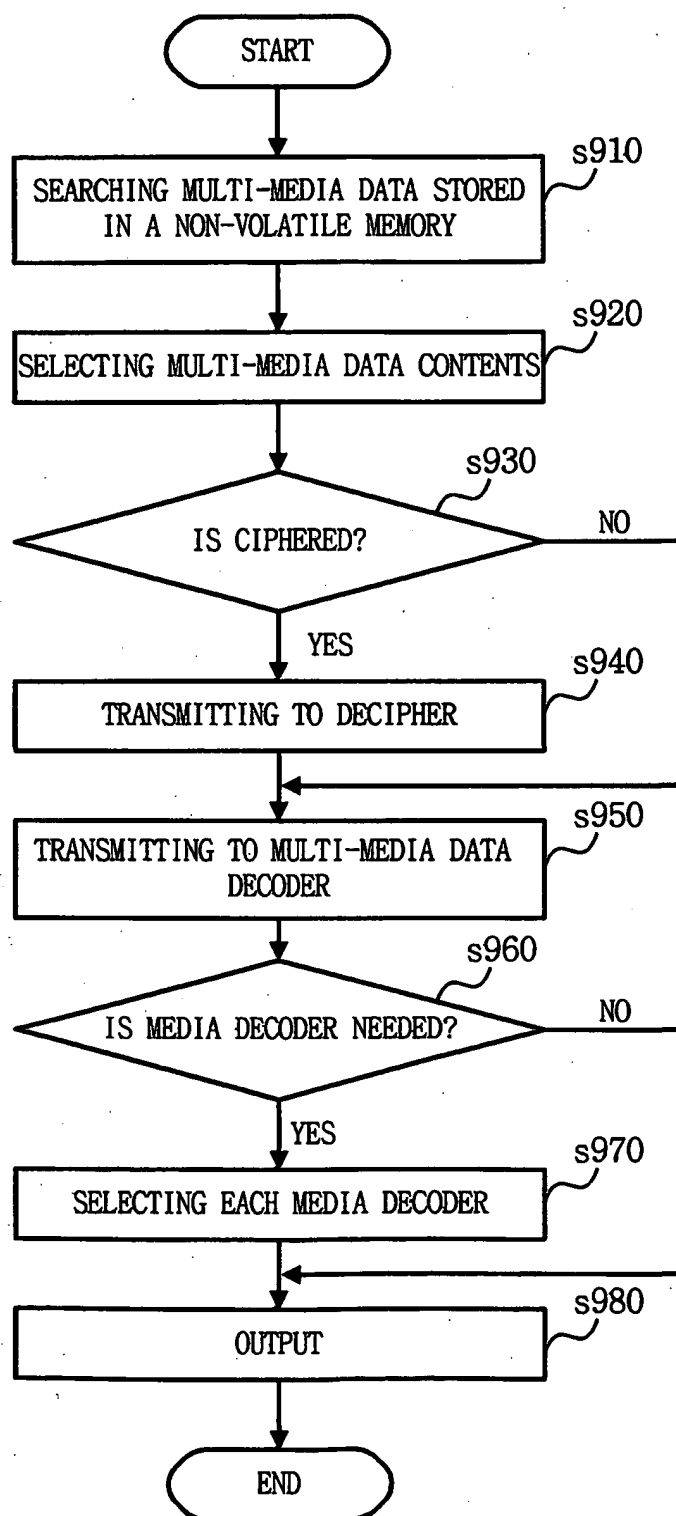


FIG. 6

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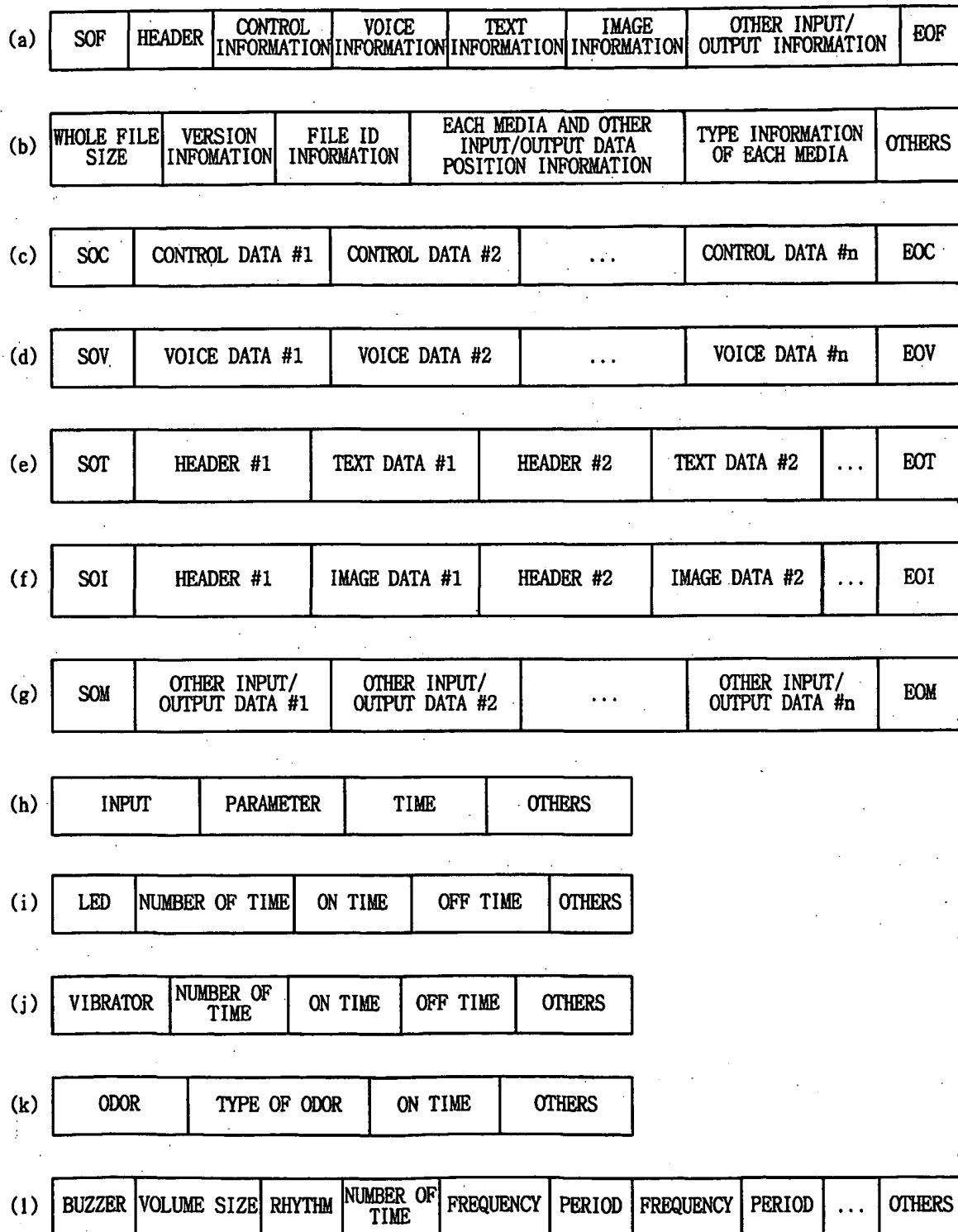


FIG.7

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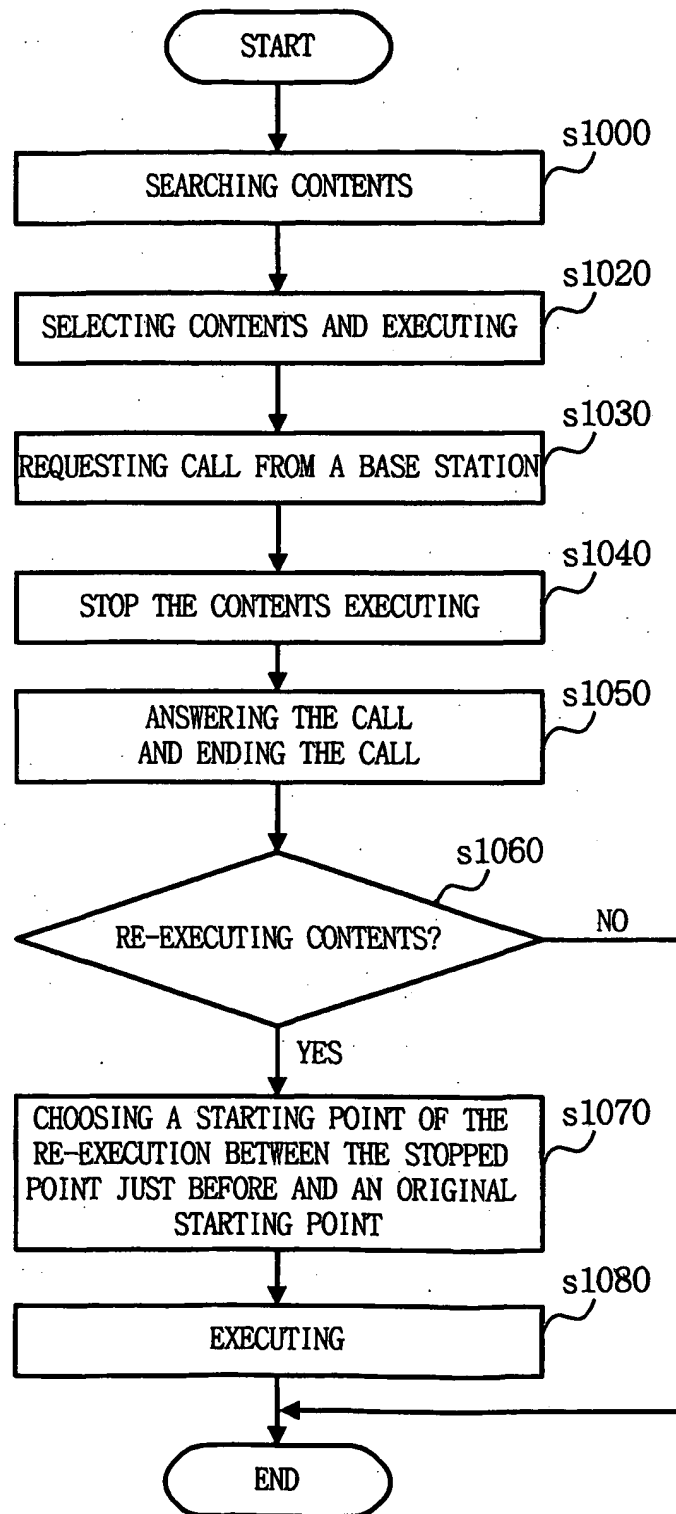


FIG. 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR01/00730

A. CLASSIFICATION OF SUBJECT MATTER												
Int. Cl. ⁷ : H04Q 7/32												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols)												
GLOBAL												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)												
WPAT, USPTO, INSPEC												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
Y	US 5799091 A (Lodenius) 25 August 1998 Whole Document	1, 2, 14-16										
Y	US 4893351 A (McKee et al) 9 January 1990 Whole Document	1, 2, 14-16										
A	US 5926624 A (Katz et al) 20 July 1999 Whole Document	1, 2, 14-16										
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search		Date of mailing of the international search report										
3 August 2001		8 August 2001										
Name and mailing address of the ISA/AU		Authorized officer										
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		R.H. STOPFORD Telephone No : (02) 6283 2177										

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR01/00730**C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5761485 A (Munyan) 2 June 1998 Whole Document	1, 2, 14-16

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR01/00730**Box I Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos :
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos :
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos :
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Continued on a separate sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 2, 14-16

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR01/00730**Supplemental Box**

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No: II

The International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are five inventions:

1. Claims 1-2, 14-16 are directed to a digital mobile phone which stores and accesses ciphered multimedia data. It is considered that the storing and accessing of ciphered multimedia data in a digital mobile phone is the first special technical feature.
2. Claims 3-13 are directed to a method of downloading multimedia data from a network or the Internet to a digital mobile phone. It is considered that the downloading of multimedia data from a network or the Internet to the digital mobile phone is the second special technical feature.
3. Claims 17-20 are directed to a method of formatting multimedia data for use in a digital mobile telephone. It is considered that the manner of formatting of multimedia data is the third special technical feature.
4. Claim 21 is directed to a method of advertizing to mobile phone subscribers in which the advertizer is automatically informed of the mobile subscriber accessing the advert by use of the SMS. It is considered that the automated response by use of the SMS to inform the advertizer of access of the advert by the mobile subscriber is the fourth special technical feature.
5. Claims 22-23 are directed to a method of executing multimedia data on a mobile phone in which the execution of the multimedia content is stopped to answer an incoming call and then after the completion of the incoming call the execution of the multimedia content is then either recommenced or terminated. It is considered that the stopping of the execution of the multimedia content to answer an incoming call and then after the completion of the incoming call the execution of the multimedia content is then either recommenced or terminated is the fifth special technical feature.

Since the above mentioned groups of claims do not share any of the special technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR01/00730

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
US	5799091	EP	0809366		
US	4893351		NONE		
US	5926624	AU	4343997	EP	0934565
				WO	9811487
US	5761485	AU	1085497	BR	9611855
				CA	2231807
		CN	1203679	EP	0864128
				WO	9720274
END OF ANNEX					